

# Redescription of *Mantis filiformes* Fabricius (Phasmatidae: Bacteriinae)

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## Abstract

*Mantis filiformes* Fabricius, 1787 from South America is redescribed and illustrated. As a junior homonym of *Mantis filiformis* Herbst, 1786, the Fabrician species name has been replaced by *Bacteria fabricii* nom.nov.

## Key words

Phasmida, *Mantis filiformes*, redescription, *Bacteria fabricii* nom.nov.

## Introduction

Descriptions of some of the first stick insects in the late 1700s tended to be very brief. In some cases, researchers have never followed up on these species, or have even avoided reference to them. When discussing *Bacteria filiformis* (see later for notes on spelling variations), Westwood (1859) remarked "This is another insect of which the insufficiency of the early description renders identification nearly impossible." He goes on to describe how subsequent authors have become confused by this species. I made a start on the Fabrician type material by redescribing four species deposited in the Zoological Museum, University of Copenhagen collection (Brock, 1998a). As part of my research, I visited the Hunterian Museum, Glasgow, Scotland (HMUG) in 1997 to redescribe *Mantis filiformes* Fabricius for this paper. My objective is to clarify the early literature and assist in preventing workers on phasmids from publishing descriptions of new species which are subsequently linked to existing species. Some recent authors have relied heavily on the classification in Brunner and Redtenbacher (1906-08); although this is the most recent monograph on the Phasmida, it includes a number of deficiencies (Brock, 1998b).

### *Bacteria fabricii* nom.nov. (Figure 1a-d)

*Mantis filiformes* Fabricius, 1787: 227.

*Mantis filiformis* - Fabricius, 1793: 12. [justified emendation]

*Phasma filiformis* - Fabricius, 1798: 106.

*Bacteria filiformis* - Latreille et al., 1827: 157.

Selected references only are cited above.

## Material examined

Holotype female, South America "America meridionali, Mus. D. Hunter" (HMUG).

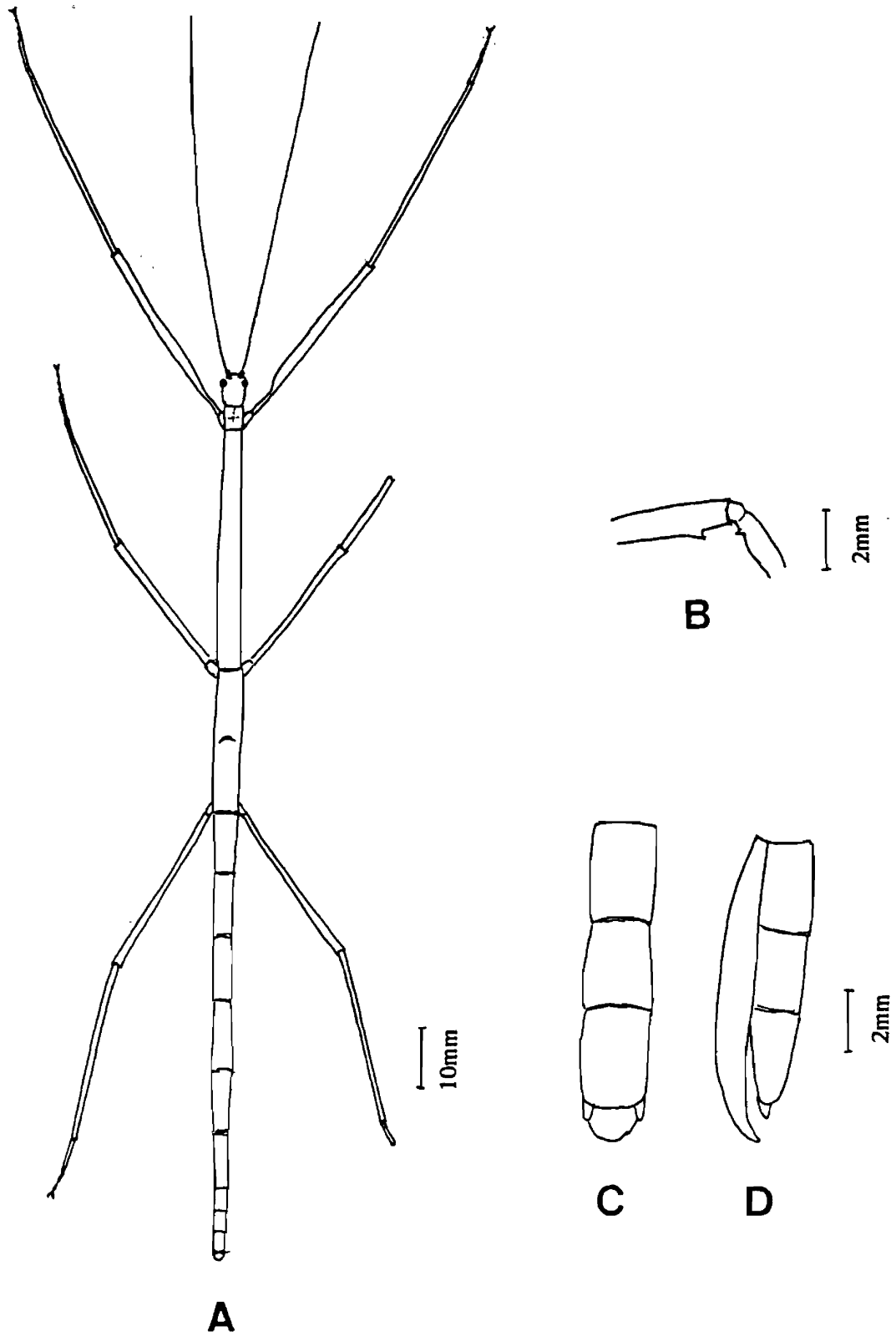
## Description

Female: 146mm mottled dark brown, elongate smooth bodied and wingless insects; legs rather lighter; slightly mottled.

*Head.* Longer than wide. Eyes small, dark brown. Hint of four dark lines to back of head. Antennae dark brown, almost black, indistinctly segmented; first segment larger. Antennae almost as long as fore legs.

*Thorax.* Pronotum shorter than head, with central cross-like indentation. Mesonotum almost 10 times length of pronotum. Metanotum much shorter than mesonotum; width 4mm.

*Abdomen.* First seven segments similar in length at around 10mm. Hind part of 6th segment raised dorsally; very slight hint of same on other segments. Hind part of underside of 7th segment with small stout central spine. The final three segments are much shorter than the preceding segments, with 8th segment 3.5mm long, 9th 3mm and anal segment (10th) 3.2mm. End of anal segment slightly rounded. Cerci short, stout, rounded at tip. Operculum long, boat shaped, exceeding end of anal segment; tip broad, rounded (Figures 1c-d).



**Figure 1.** A) holotype female; B) spines on hind leg; C) dorsal view of apex of abdomen; D) lateral view of apex of abdomen.

**Legs.** Long and slender. Base of fore femora very narrow and incurved, width then broadened to 1.5mm, narrowing to 1mm at apex. All femora with a pair of apical spines and a pair of bold subapical spines (Figure 1b). Tibiae with small subbasal spine; also broadened slightly basally and apically. Tarsi long, normal.

### Measurements

Body length 146mm, head 4.7mm, antennae 60mm, pronotum 4mm, mesonotum 39mm, metanotum 12.5mm, median segment 11.5mm, cerci 0.5mm. Femora: fore 31mm, mid 25mm, hind 28mm. Tibiae: fore 34mm, mid 22mm, hind 30mm (right mid tibia broken off). Tarsi: fore 10mm, mid 9mm, hind 10mm.

### Notes

The original description by Fabricius is very brief. After keying as "corpore filiformi aptero" (body slender, wingless), he described *filiformes* very simply as follows: "Corpus totum elongatum, filiforme, fulcum pedibus corpore longioribus, filiformibus, simplicibus. Antennae nigrae."

The trustees' catalogue in the Hunterian museum lists four *Mantis filiformes*; however, the person who prepared the catalogue considered all specimens between one label and the next belonged to the species mentioned on the first label. The only species I located which matched the short description is the unique specimen (placed in the far right corner of drawer HUB/15). This specimen has been correctly listed as a *Bacteria* species by some subsequent authors. Whilst it is possible that Fabricius linked various wingless specimens of different species, this is unlikely as his description refers to black antennae, lacking in the other three smaller specimens (amongst which a small specimen was marked holotype, in error).

There has also been some confusion in the literature regarding this species. Most authors have listed the species name as *filiformis*, following Fabricius (1793), whereas it was described by the same author in a lesser known publication, 6 years earlier, as *filiformes*. It is not known if Fabricius was attempting to correct a possible error in his original description. J. Flanagan, a researcher at the Hunterian Museum, also noticed this discrepancy and commented (unpublished manuscript) "*Mantis filiformis* Herbst in Fuessly, 1786 may be a senior homonym [referred to by Fabricius (1793), although he was unaware of Herbst's publication when describing *filiformes*. In any event, Herbst described a different species from India and if Fabricius intended to link the two species, this was in error] but, because of the spelling difference, probably isn't." It is considered that *filiformes* was an "incorrect original spelling" and Fabricius made a "justified emendation" in using *filiformis*. As a junior homonym of *Mantis filiformis* Herbst, 1786, I have renamed the Fabrician insect *Bacteria fabricii* in honour of Fabricius. The type locality translates to South America and whilst linked with the West Indies (including Gray (1835); Redtenbacher (1908) who considered the description was of the male sex), this must be considered doubtful. However, *Bacteria simplicitarsis* Gray, 1835, from Jamaica is very similar, but differs in the shape of the anal segment and operculum.

### Acknowledgements

My thanks to Maggie Reilly and Dick Hendry (Hunterian Museum) for access to the collection, and associated notes on the phasmids. Also to Judith Marshall and Peter Barnard (BMNH) for comments on this paper.

## References

- Brock, P.D.** (1998a) Type material of stick-insects (Insecta: Phasmida) in the Zoological Museum, University of Copenhagen. *Steenstrupia*, 24(1): 23-35.
- Brock, P.D.** (1998b) Catalogue of the type specimens of Stick- & Leaf-insects in the Naturhistorisches Museum Wien (Insecta: Phasmida). *Katalog der wissenschaftlichen Sammlungen des Naturhistorischen Museums in Wien*, Band 13: Entomologie, Heft 5.
- Brunner von Wattenwyl, K.** (1907) *Die Insektenfamilie der Phasmiden*. Verlag Engelmann, Leipzig.
- Fabricius, J.C.** (1787) *Mantissa Insectorum sistens eorum species nuper detectas adiectis characteribus genericis, differentiis specificis, emendationibus, observationibus*. Vol. 1, Havniae Copenhagen.
- Fabricius, J.C.** (1793) *Entomologia systematica emendata et aucta. Orthopt.* Vol. 2. Hafniae Copenhagen.
- Fabricius, J.C.** (1798) *Supplementum Entomologiae Systematicae*. Havniae Copenhagen.
- Gray, G.R.** (1835) *Synopsis of the Species of Insects Belonging to the Family of Phasmidae*. Longman, Rees, Orme, Brown, Green and Longman, London.
- Herbst, J.F.W.** (1786) Fortsetzung des Verzeichnisses meiner Insectensammlung. *Archiv der Insectengeschichte* (Füessly) 8: 183-196, pls. 43-54.
- Latreille, P.A., Le Peletier de Saint Fargeau, A.L.M., Audinet-Serville, J.G. & Guérin, M.F.E.** (1825-27) *Encyclopédie Méthodique, Histoire Naturelle. Entomologie, ou Histoire Naturelle des Crustacés, des Arachnides et des Insectes*. Agasse, Paris. Vol 10, part 2: 345-832.
- Redtenbacher, J.** (1906, 1908) *Die Insektenfamilie der Phasmiden*. Volumes 1 & 3. Verlag Engelmann, Leipzig.
- Westwood, J.O.** (1859) *Catalogue of Orthopterous Insects in the Collection of the British Museum. Part 1, Phasmidae*. British Museum, London.